

---

---

# ***PRODUCT INFORMATION***

*Vol.88*

## **Ultraminiature GaAs Switch MMIC Developed**

**High performance achieved in the Industry's smallest package.**

### **SPM3203**

#### **Overview**

The scale of the mobile communication equipment (e.g. portable telephones) market reached 150 million units world wide in 1998, and is expected to reach 250 million units in 1999. Furthermore, the use of mobile equipment as terminals to information services has been growing rapidly, and a global standard is expected to lead to further advances in multimedia.

Due to these market directions, there are now strong demands for improved audio communication quality and increased functionality in mobile communication terminals. To meet these market needs, there are now strong demands for miniaturization, reduced weight, and reduced parts counts in the RF switch used in mobile portable communication telephones and terminals.

Sanyo has now developed an ultraminiature GaAs switch MMIC, the SPM3203, that features superb characteristics and concern for the environment.

The SPM3203 represents a further evolutionary step for Sanyo's switch MMIC optimized design technology, a technology that has a strong track record in mobile communication equipment. By optimizing the process technology, layout design, and circuit design, Sanyo succeeded in achieving both improved performance and further miniaturization in the SPM3203.

Further miniaturization was achieved in the SPM3203 by the use of a newly established high-density design technology. This allows the SPM3203 to be provided in the ultraminiature MCP6 package, which reduces the mounting area by 1/2 as compared to earlier Sanyo products, and achieves the industry's smallest package for this class of device. This product requires only 3 external components, thus achieving the industry's smallest number of external components.

The SPM3203 achieves (1) an insertion loss, the loss when the high-frequency power passes through the switch, of 0.55 dB, (2) an isolation, the leakage to the off side of the switch, of 21 dB, a 1 dB improvement over earlier Sanyo products, and (3) linearity characteristics, which represent the distortion of the output signal with respect to the high-frequency input signal, of 20 dBm.

Sanyo is committed to continue expanding their product line of RF devices in the ECoP (Environmentally Considered Products) Series.

# PRODUCT INFORMATION

---

Sanyo has applied for five patents related to this product.

## Features

- Adoption of the MCP6 ultraminiature package (external dimensions: 2.0 ×2.1 ×0.9 mm) reduces the mounting area by 1/2 as compared with earlier products.
- Easy-to-use dual supply (+3 and 0 V) control voltage system
- Achieves the industry's smallest number of external components: 3 components.
- Low insertion loss
- High isolation
- High linearity
- Highly resistant to device destruction caused by electrostatics.

## Specifications

Type No.	f (GHz)	Insertion loss (dB)	Insolation (dB)	Po1 dB (dBm)	Structure	Package
SPM3203	0.9	0.55	21	20	SPDT	MCP6

# PRODUCT INFORMATION

---

## Sample Availability

The SPM3203 will be available in sample quantities by mid September 1999, and in production quantities (1 million units per month) by September 2000.

SEPTEMBER 9, 1999

- Any and all SANYO products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your SANYO representative nearest you before using any SANYO products described or contained herein in such applications.
- SANYO assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all SANYO products described or contained herein.
- Specifications of any and all SANYO products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- SANYO Electric Co., Ltd. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all SANYO products (including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of SANYO Electric Co., Ltd.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the SANYO product that you intend to use.
- Information (including circuit diagrams and circuit parameters) herein is for example only; it is not guaranteed for volume production. SANYO believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.